# SECTION 13.
# INFLATABLE LIFE RAFTS

## 583–13.1 INTRODUCTION

**583–13.1.1 GENERAL**. An inflatable life raft is one constructed of a coated fabric and inflated to its design shape by air or other gas. The raft is stowed aboard ship for use only as a life raft, when and as directed by the Commanding Officer.

**583–13.1.2 TYPES OF INFLATABLE LIFE RAFTS**. There are two basic Navy type inflatable life rafts for use throughout the fleet:

a. MK6, 25 person, air inflated

b. LRU 12/A (former MK4), 4 person, $CO_2$ inflated, for use with submarine only.

**583–13.1.3 LIFE RAFT SPECIFICATIONS**. The following military specifications and instructions apply for the construction of these rafts:

a. MK6, MIL–L–24489. which includes:

1. Inflation Equipment, MIL–I–24490.

2. Rigid container, MIL–C–24491.

3. Inflation cylinder MIL–C–24604.

b. LRU 12/A (4 person), MIL–L–5567

## 583–13.2 ALLOWANCES AND ISSUES

**583–13.2.1 CORRESPONDENCE**. All correspondence related to inflatable rafts shall cite type (for example, MK6) and Mod number. Whenever the status of a life raft changes, the life raft database must be updated. Report all changes to Naval Surface Warfare Center, Detachment Norfolk, Carderock Division.

**583–13.2.2 STANDARD SHIPBOARD ALLOWANCE**. The allowance of inflatable life rafts for in service ships is as follows:

a. For ships with total accommodations greater than 295, life rafts shall be provided for 110 percent of accommodations (including surge) or 110 percent of Manpower Authorization (MPA) whichever is greater. The number of rafts provided in excess of the number of rafts required to satisfy 100 percent of accommodations shall not exceed 12.

b. For ships with total accommodations less than 295, life rafts shall be provided for 100 percent of accommodation (include surge) or 100 percent of MPA whichever is greater. The total number of life rafts shall be sufficient to retain life raft capacity for 100 percent of accommodations in the event that the largest cluster of life rafts is destroyed. A cluster is defined as life rafts being supported by a common structure. In calculating the number of life rafts required, any fractional value shall be increased to the next higher unit value.

**583–13.2.3 CHANGES IN ALLOWANCE**. Changes in allowance will be considered by Naval Sea Systems Command (NAVSEA) only upon presentation of information documenting a Chief of Naval Operations directed change to ship’s mission, or an official revised Ship’s Manning Document, OPNAV-INST 5320 (series) causing a change in the ship’s accommodations.

**583–13.2.4 HOW RAFTS ARE OBTAINED**. Except to satisfy replacement of a unit of inflatable raft allowance, issue of inflatable life rafts shall be approved by NAVSEA. Replacement of an inflatable life raft of ships allowance for reasons of loss, survey, or deferral for repair shall be by current requisition procedures to the Navy Inventory Control Point (NAVICP), Mechanicsburg, PA. The following National Stock Numbers (NSN) or Activity Control Numbers (ACN) apply:

a. MK6, NSN 1940–01–015–7346 (includes survival gear and rigid container).

b. MK6, NSN 1940–00–148–9176 (raft only).

c. Rigid container (for MK 6 rafts) NSN 4220–00–148–8603.

d. LRU 12/A, Survival gear covered on Allowance Equipment List (AEL) 2–820393001.

**583–13.3 REPORTS**

**583–13.3.1 MAJOR REPAIR REPORTS**. Major repair actions on and MK6 life rafts shall be reported by certified repair facilities on an approved NAVSEA Form. The repair shall be described briefly; it shall be identified and the date of release from shipboard and return to shipboard, shall be noted. The replacement raft number shall be provided if the raft is replaced. These completed forms shall be kept on file at the repair facilities for review by the NAVSEA certification team.

**583–13.3.2 LIFE RAFT TURN–IN OR EXCHANGE**. Copies of all turn-in documents for rafts and survival gear shall be forwarded to NAVICP. MK6 life rafts being turned in to supply do not require an inventory taken of their survival gear unless the container has been opened and survival gear bag inventory is questionable.

**583–13.3.3 RECEIPT OF NEW LIFE RAFT REPORT**. Ships receiving new type life rafts will submit allowance Change Request/Report, NAVSUP Form 1220 to NAVSUP Form 1220 to NAVICP and NSWC Detachment Norfolk according to NAVSEAINST 4441.1.

**583–13.4 DISPOSALS AND SURVEYS**

**583–13.4.1 DISPOSAL OF LIFE RAFTS**. An inflatable life raft shall not be disposed of or surveyed by ships' force except as noted in the following paragraph. Rafts that are determined to be unrepairable by designated repair and certified facilities shall be disposed of or surveyed in accordance with NAVSEA S9008–AA–PRO–010.

**583–13.4.2 LOSS OF LIFE RAFT AT SEA**. A raft lost at sea is considered surveyed.

**583–13.4.3 CERTIFIED AND REPAIR FACILITIES' DISPOSAL OF LIFE RAFTS**. Disposals shall be made only by those designated repair and certified facilities listed in paragraph 583–13.11.1.1, in which case, all salvageable parts in good condition shall be removed and retained in local stock to be used again. The raft shall then be destroyed. The life raft database shall then be updated with an entry of the destruction.

**583–13.4.4 LIFE RAFTS FROM SHIPS BEING DEACTIVATED**. For ships being deactivated, refer to paragraph 583–13.3.2.

**583–13.5 STOCK CLASSIFICATION, LEVELS, AND DISTRIBUTION**

**583–13.5.1 CLASSIFICATION**. Stock rafts are divided into categories listed in paragraphs 583–13.5.1.1 through 583–13.5.1.4.

**583–13.5.1.1 Condition A** – Any raft ready for issue. The following may be in this category:

a. MK6 in stock, ready for issue

b. LRU 12/A, in stock, ready for issue

c. Any shipboard raft that continues to pass presently authorized shipboard inspections

**583–13.5.1.2 Condition F** – Any raft economically repairable but not issuable without repair.

**583–13.5.1.3 Condition H** – Any raft that is uneconomical to repair. Rafts in this category are considered unserviceable and shall be surveyed according to paragraph 583–13.6 when directed by NAVICP.

**583–13.5.1.4 Condition M** – Any raft in process of repair, in transition from Condition F to Condition A. Stock rafts shall be placed in the foregoing categories only as a result of inspection by qualified personnel of designated repair and certified facilities. Refer to paragraph 583–13.11.1.1 for designated repair and certified facilities.

**583–13.5.2 STOCK LEVELS**. Based on demand, minimum stock levels of issuable rafts, by types, will be established at stocking activities.

**583–13.5.3 DISTRIBUTION**. Selection of rafts shall be on a first in and first out basis of Condition A rafts only, of the type and Mod to suit the individual ship requirements. Types and Mods shall be approved by NAVSEA if different from existing ship's rafts.

**583–13.5.3.1 Repair Priority**. Selection of rafts for repair to Condition A shall be from existing stocks of Condition F rafts determined to be most economical to repair, whenever possible.

**583–13.5.3.2 Estimated Repair Costs**. Estimated repair cost shall be reported on an approved NAVSEA Form and shall include (though separately identified from) costs to open and inspect.

**583–13.6 IDENTIFICATION**

**583–13.6.1 LIFE RAFT REGISTRY NUMBER**. Each raft is assigned a registry number for purposes of identification. The number is molded into the raft's identification label attached to the hull tube.

**583–13.7 CAPACITIES, WEIGHTS, AND DIMENSIONS**

**583–13.7.1 LIFE RAFT CHARACTERISTICS**. Normal operation of the Mark 6 life raft is accomplished by applying tension to the painter line which actuates the primary inflation cylinder. As inflation occurs, the brass securing bands on the container are broken as the life raft emerges. The secondary inflation cylinder is actuated by the unfolding life raft thereby completing the deployment sequence. Should circumstances impede the normal operation of the life raft, the life raft can still be deployed. Any cutting instrument, for example the scissors from the first aid kit of a deployed life raft, can be used to sever the brass securing bands of the containerized life raft. Remove the upper container half and locate the primary or secondary inflation cylinder. The inflation cylinders can be actuated manually by extracting the inflation cable. Should the secondary cylinder be actuated first then the primary cylinder will have to be actuated manually. Table 583–13–1 lists characteristics for inflatable life rafts.

**583–13.7.2 RIGID CONTAINER**. The rigid container (27 inches in diameter, 56 inches long) is fabricated of glass reinforced plastic (GRP) in two halves, with a gasketed seam. The lower half is identified by lifting handles molded into the shell.

**583–13.7.3 CONTAINER DESIGN**. The container design is detailed on NAVSEA dwg 803–4382176. The container is capable of withstanding a freefall drop of 65 feet from stowage into the water.

**583–13.7.4 MK6 LIFE RAFTS**. MK6 rafts are shipped ready for installation into stowage cradles aboard ship. They are packed complete, survival gear contained within, and banded with two brass bands. Care should be exercised to ensure that the two brass sealing bands are not cut or damaged.

**Table 583–13–1. CHARACTERISTICS FOR INFLATABLE LIFE RAFTS**

| RAFT TYPE | CAPACITY | WEIGHT (LBS) | DIMENSION INFLATED L W | DIMENSION CONTAINER H W L |
|---|---|---|---|---|
| Mark 6 | 25 Person | 500 | 17’ – 10” 8’ – 10” | 27” Dia. 56” Lg. |
| LRU 12/A | 4 Person | 42 | (See MIL–L–5567) | Fabric Valise |

**583–13.8 EQUIPMENT AND REPAIR PARTS**

**583–13.8.1 SURVIVAL GEAR AND REPAIR PARTS FOR MK6 LIFE RAFTS**. With the installation of encapsulated life rafts MK6, the survival gear and repair parts become raft allowance (stowed within the fiberglass container, inaccessible to the ship’s crew until deployed).

**583–13.8.2 LIST OF SURVIVAL GEAR FOR EACH TYPE LIFE RAFT**. Table 583–13–2 lists the survival gear provided for each type of raft.

**Table 583–13–2. SURVIVAL GEAR**

| ITEM | DESCRIPTION | SPECIFICATION | NSN | QUA (MA) |
|---|---|---|---|---|
| 1 | Food Packet (Individual Ration) or Food Packet, Survival Abandon Ship | MIL–F–16895<br>CID (A–A–20247) | 8970–00–299–1395<br>8970–01–434–3192 | 1<br>2 |
| 2 | Water, Plastic Container (500ml) | | 8960–00–000–0170 | 2 |
| 3 | Manual Reverse Osmosis Desalinator (MROD) | | 4610–00–319–5337 | |
| 4 | Storage Bag, Drinking Water, Size A | MIL–B–8571 | 8465–00–485–3034 | |
| 5 | Flashlight (2 Cell) Type II Style I, or Type III Style I | MIL–F–3747 | 6230–00–269–3034<br>6230–00–299–3035 | |
| 6 | Battery, Dry, Flashlight Alkaline “D” | W–B–101 | 6135–00–835–7210 | |
| 7 | Sea Marker, Fluorescent | MIL–S–17980 | 6850–00–270–9986 | |
| 8 | Mirror, Signalling, Type II | MIL–M–18371 | 6350–00–261–9772 | |
| 9 | Sponge, Cellulose Type II Size 3, Porosity A | L–S–626 | 7920–00–240–2559 | |
| 10 | Knife, General Purpose, Pocket | MIL–K–818 | 5110–00–162–2205 | |
| 11 | Whistle, Signaling, Plastic, Type II | MIL–W–1053 | 8465–00–254–8803 | |
| 12 | Motion Sickness Tablets Dimenhydrate, 50mg | | 6506–00–116–9660 | 3 |
| 13 | Bailer, Plastic, 2 Qt. Capacity | Commercial | | |
| 14 | Kit, First Aid | | 6545–00–168–6893 | |
| 15 | Kit, Abandon Ship Signal | | 1370–01–366–0344 | |
| 16 | Kit, Fishing Survival | MIL–F–6218 | 4220–00–125–8751 | |
| 17 | Flashlight Bulb (PR6) | | 6240–00–155–8675 | |

**Table 583–13–2. SURVIVAL GEAR (Cont)**

| ITEM | DESCRIPTION | SPECIFICATION | NSN | QUA (MA) |
|---|---|---|---|---|
| 18 | Blanket, Combat Casualty (84” x 55”) | Commercial | | 1 |
| 19 | Hand Pump, Air with Hose and Adapter | MIL–P–12647 | 4320–00–299–2229 | |
| 20 | Sealing Clamp, 3 inch | MIL–R–52255 | 5340–00–720–8864 | |
| 21 | Sealing Clamp, 5 inch | MIL–R–52255 | 5340–00–720–8863 | |
| 22 | Sealing Clamp, 7 1/2 inch | MIL–R–52255 | 5340–00–720–8858 | |
| 23 | Container, equipment | Dwg. 805–4382177 | 4220–00–138–7118 | |
| 24 | Oars | MS26529–2 | 2040–00–268–9261 | |
| 25 | Sea Anchor with Line Type 2 Size 1 | MIL–A–3339 | 2040–00–368–2880 | |
| 26 | Rescue Line | | 4220–01–006–6103 | |
| 27 | Floatable Knife | | 4220–01–006–6102 | |
| 28 | Inflatable Floor (2 Sections) | Dwg. 805–4382177 | 1940–01–168–9483 | |
| 29 | Operation Manual | | S9008–BZ–INS–010 | |

* Items of survival gear are covered in AEL 2–820393001. Life raft is used aboard submarines.

## 583–13.9 STOWAGE AND HANDLING

**583–13.9.1 STOWAGE**. Inflatable life raft stowages should be located to permit ready manual overboard launching into the water without hitting obstructions; to be clear of overhead obstructions; to avoid adverse effects of gun, missile and jet blasts and heavy seas; and to interfere as little as possible with normal shipboard activity. They shall be located, longitudinally, where they will provide the maximum practical distribution of lifesaving facilities. The perferred orientation of the life raft in the stowage is with the seam of the upper and lower halves of the container positioned approximately parallel to the baseline of the ship and the sea painter line exiting the life raft container facing the aft end of the ship. Furthermore, all caution labels shall be plainly visible. They shall be provided and stowed in accordance with appropriate NAVSEA standard drawings.

**583–13.9.1.1 Hydrostatic Release**. Equipment for securing the rafts in their stowages shall include a can–type hydrostatic release device, NAVSEA dwg 803–5959322, NSN 1H–4220–01–279–7287 or a diaphragm–type hydrostatic release MIL–R–15041, NSN 1H–4220–00–269–7950 with spring tensioner that permits automatic and manual release. This provides for quick release of the raft from its stowage for hand launching, or release from its stowage from hydrostatic pressure, resulting from a sea water depth of 10 to 40 feet in the event of a sinking.

**583–13.9.1.2 Sea Painter**. The sea painter line for MK6 shall be attached directly to the ship structure adjacent to the stowage.

**583–13.9.2 HANDLING**. Care should be taken in handling inflatable life rafts during shipping in and out of stowage, inspection, and transportation to and from repair facilities. To minimize damage to the life raft during transporation each life raft should be banded to a wooden pallet. Furthermore, encapsulated life rafts MK6 should never be rolled or tipped on end. They should be lifted and carried using the molded handholds in the fiberglass container or an approved NAVSEA lifting sling as shown on Norfolk Naval Shipyard drawing 4712507. Care shall be exercised to ensure that the two brass sealing bands are not inadvertently cut or damaged.

**583–13.9.2.1 Covered Storage**. Storage areas for Condition A rafts shall be dry and free from effects of weather and from heat concentrations such as steam pipes. Warehouses or other covered storage spaces shall be utilized wherever possible.

**583–13.10 INSPECTION**

**583–13.10.1 TYPES OF PERIODIC MAINTENANCE**. Inspections shall be made at the following levels of responsibility to ensure that rafts, stowages, handling equipment, survival gear, and rations are satisfactory for emergency use:

a. Organizational level (shipboard). Container, minor repairs (paragraph 583–13.11.1.3), raft stowages, and handling equipment (paragraphs 583–13.10.2 through 583–13.10.2.1.6 apply).

b. Intermediate level (Ship Intermediate Maintenance Activity (SIMA)) LRU 12/A only. Open, inspect, minor repair (paragraph 583–13.11.1.3), update survival gear and rations, test and repack.

c. Depot level (repair facility). Open, inspect, minor and major repair, update survival gear and rations, test, and repack (paragraph 583–13.10.3 applies).

**583–13.10.2 ORGANIZATIONAL (SHIPBOARD) LEVEL**. Inflatable life rafts and life raft stowages aboard ship shall have periodic Planned Maintenance System (PMS) according to the appropriate Maintenance Index Page (MIP).

**583–13.10.2.1 MK6**. Container banding and rubber sealing band shall be examined to ensure that both bands are intact. In event that the bands have parted or been tampered with or the container has been damaged extensively, the raft shall be inspected by a representative of a certified repair facility (paragraph 583–13.11.1.1) to determine the level of repair that is required on the life raft.

**583–13.10.2.1.1** Stowage Securing Harness. The stowage securing harness shall be checked to ensure proper tension. On stowages with the can–type hydrostatic or the diaphragm–type hydrostatic, without the spring tensioner, the harness shall be torqued 8 to 10 lb–ft. On stowages with the diaphragm–type hydrostatic, with the spring tensioner, the harness shall be tightened until the life raft is securely seated in its cradle, but not so as to damage the life raft container.

**NOTE**

In some instances, nylon straps or stainless steel wire rope may be installed. Replace with nylon–covered, galvanized steel wire rope as detailed on NAVSEA drawings 803–5001024, 803–6397272, 803–6397273 or 803–6397275.

**583−13.10.2.1.2** Hydrostatic Release. The hydro–static release assembly shall be visually checked. Correct tightness of the securing harness (refer to paragraph 583–13.10.2.1.1) shall be ensured. The release assembly shall not be painted. In event the release assembly is painted, it shall be removed and replaced. Removed release assemblies shall be turned in to a repair facility for refurbishing and testing.

**583−13.10.2.1.3** Hydrostatic Release Installation. The can type hydrostatic release device shall be installed with the end bracket having the hair pin connected to the retaining harness and the open end of the can shield facing the aft end of the ship. The hair pin shall be installed in a direction to facilitate removal. The diaphragm–type hydrostatic release device shall be installed with the smaller end bracket connected to the retaining harness. The pushbutton shall face away from traffic to prevent inadvertent release.

**583−13.10.2.1.4** Securing Sea Painter. The MK6 sea painter line from the container shall be checked to ensure that it is securely tied directly to ship’s structure, and accessible to the person launching the raft (refer to paragraph 583–13.9.1.2).

**583 – 13.10.2.1.5** Checking Stowage. The rigid container and stowage interface shall be visually inspected to ensure that the stowed raft is sitting snug in the cradle and not subject to shifting. (Refer to paragraph 583–13.10.2.1.1).

**583 – 13.10.2.1.6** Inspection and Test. With the periodicity stated in the appropriate MIP, the rafts shall be turned in to a certified repair facility for inspection and test according to paragraph 583–13.11.

**583–13.10.3 DEPOT LEVEL**. Inspection, major, or minor repair of the various rafts (paragraph 583–13.10.1) shall be accomplished by an approved certified repair facility (paragraph 583–13.11.1.1).

a. Conduct all applicable tests and inspections (raft, equipment, and systems) listed in the appropriate technical manuals.

b. Make any major and minor repairs as necessary. Refer to paragraphs 583–13.11.1.3 and 583–13.11.1.4.

**583–13.11 REPAIR AND MAINTENANCE**

**583–13.11.1 DEFINITIONS**. Terms used in this section are defined in the following paragraphs. Reference to NAVSEA S9008–AA–PR0–0l0/MK6 include all appropriate Maintenance Bulletins issued by NAVSEA.

**583–13.11.1.1 Certified Repair Facility**. A repair facility is any NAVSEA approved activity designated to accomplish minor and major repairs, inspection, maintenance, and survey of inflatable rafts. A certified facility is a facility approved by NAVSEA to inspect, test, pack, and certify MK6 life rafts. These facilities are annually certified by a NAVSEA certification team. The following designated activities are presently certified repair facilities:

a. Norfolk Shipyard Naval

b. SRF Yokosuka, Japan

c. SIMA Activities

1. SIMA Mayport

2. SIMA San Diego

d. Original Equipment Manufacturer (OEM)

1. SMR Technologies Inc., Fenwick, WV

**583–13.11.1.2 Repair**. A repair is the correction of a problem which, when completed, will restore a raft to a reliable condition.

**583–13.11.1.3 Minor Repairs**. Minor repairs that may be accomplished by ships' force and IMAs only if material and spare parts are available.

a. Repairs on LRU 12/A include specifically:

1. Small holes, tears, punctures, or abrasions in bottom or canopy fabric.

2. Replacement of parts of valves or manifolds.

b. Repairs on MK6 life rafts that may be accomplished is limited to replacement of canister bands only.

**583–13.11.1.4 Major Repairs**. Those repairs that require service by certified repair facilities. They include:

a. Repairs to damaged inflatable components (hull tubes, canopy bows, inflatable floors). All these repairs require vulcanizing.

b. Manifold or valve assembly replacement. All these repairs require vulcanizing.

c. Other repairs requiring vulcanizing.

d. For MK 6 life rafts, all repairs other than only replacement or repair of canister bands.

**583–13.11.1.5 Maintenance**. Maintenance is essentially the opening, inspecting, reinspecting, and replacing of consumables (batteries, water, and so forth) of a Condition A raft. Maintenance may be accomplished by ships' force only on LRU 12/A rafts. Maintenance on MK 6 rafts may be accomplished only by certified repair facilities (see paragraph 583–13.11.1.1), and according to NAVSEA S9008–AA–PRO–OlO/MK 6 and the various appropriate Maintenance Bulletins issued by NAVSEA.

**583–13.12 RAFT RECERTIFICATION AND EXCHANGE**

**583–13.12.1 INSPECTION AND RECERTIFICATION OR REPAIR**. Upon receipt of a ship's inflatable life rafts for inspection and recertification or repair:

a. Intermediate level activities shall accomplish the inspections and repairs authorized in paragraphs 583–13.10.1 and 583–13.10.2, returning the rafts as Condition A and arrange for delivery to the ship for return to stowage.

b. Depot level activities shall accomplish the inspections and repairs authorized in paragraph 583–13.10.3, returning the rafts as Condition A and arrange for delivery to the ship for return to stowage.

**583–13.13 TEST OF HYDROSTATIC RELEASE DEVICE**. During each ship's regular overhaul, only the diaphragm type hydrostatic release devices shall be tested as follows: A load equal to the capacity of the device, 800 pounds or 2,500 pounds, shall be applied by means of actual weights or applied tension. The device shall then be submerged in water or subjected to an equivalent air pressure in a chamber. The device should automatically release at a depth of 25 ft plus/minus 15 ft of water or at the equivalent pressure.

**WARNING**

The can type hydrostatic release device shall not be tested as noted above. The can type hydrostatic device is a non–testing device and will self–destroy if pressure tested.

**583–13.13.1** The can type hydrostatic release device shall be inspected by dimensional checks. Measure the overall dimension of the can at two places approximately 90 degrees apart along the longitudinal axis of the can.

**CAUTION**

Use micrometer dial indicating calipers, or other appropriate machinists' methods. Using rulers, yardsticks, or tape measures do not have the required accuracy and are not appropriate.

**NOTE**

The end cap of the can protrudes slightly beyond the open end of the shield. Ensure that the overall can length is measured and not the stainless steel shield.

**583–13.13.2** If the can measures less than 4.16 inches from end-to-end, it is outside acceptable limits and should not be used. Cans measuring 4.16 inches or greater are acceptable. Locally dispose of any device that is dimensionally unsuitable.